

## Claims

What is claimed is:

1 1. A robot confinement system, comprising:

2 (a) a transmitter that includes a signal emitter and a  
3 signal detector, the signal emitter being operative to  
4 broadcast a first beam and a second beam;

5 (b) a retroreflector positioned and operative to  
6 reflect at least a portion of the first beam back to the  
7 transmitter;

8 (c) the signal detector being operative to detect the  
9 reflected portion of the first beam, the reflected portion  
10 of the first beam between the signal emitter and the  
11 retroreflector defining a barrier for the robot confinement  
12 system;

13 (d) the signal emitter being operative to broadcast  
14 the second beam when the signal detector fails to detect the  
15 reflected portion of the first beam; and

16 (e) a mobile robot including

17 (e1) means for moving the mobile robot to avoid  
18 the second beam,

19 (e2) a detector operative to detect the second  
20 beam, and

21 (e3) a control unit, operative in response to  
22 detection of the second beam, to run an algorithm for  
23 moving the mobile robot to avoid the second beam  
24 broadcast by the signal emitter;

25 (f) wherein if operation of the mobile robot causes  
26 the reflected portion of the first beam to be blocked such  
27 that the signal detector fails to detect the reflected  
28 portion of the first beam, the transmitter signal emitter is  
29 operative to broadcast the second beam, which is detected by  
30 the mobile robot detector, causing the control unit to run

31 the algorithm to move the mobile robot to avoid the second  
32 beam.

1 2. The robot confinement system of claim 1 wherein the  
2 algorithm implemented by the control unit of the mobile  
3 robot moves the mobile robot to turn in a chosen direction  
4 until the second beam is no longer detected by the mobile  
5 robot detector.

1 3. The robot confinement system of claim 1 wherein the  
2 algorithm implemented by the control unit of the mobile  
3 robot moves the mobile robot in a direction opposite to the  
4 most recently traveled direction until the second beam is no  
5 longer detected by the mobile robot detector.